

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

APR 09 2019

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

5. Lease Serial No. **NMNM0558144**

6. If Indian, Allottee or Tribe Name

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2.

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator

Hilcorp Energy Company

3a. Address

382 Road 3100, Aztec, NM 87410

3b. Phone No. (include area code)

505-599-3400

7. If Unit of CA/Agreement, Name and/or No.

8. Well Name and No.

Trail Canyon 104H

9. API Well No.

30-045-35884

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Surface Unit P (SESE) 1294' FSL & 399' FEL, Sec. 21, T32N, R08W
Bottomhole Unit D (NWNW) 561' FNL & 492' FWL, Sec. 21, T32N, R08W

10. Field and Pool or Exploratory Area

Basin Fruitland Coal

11. Country or Parish, State

San Juan, New Mexico

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Fracture Treat	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change of Plans
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof.

If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once Testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Hilcorp Energy Company would like to change the drilling plans to remove the pilot hole. The revised drilling plans are attached

ADHERE TO PREVIOUS NMOC
CONDITIONS OF APPROVAL

NMOC

APR 22 2019

DISTRICT III

CONDITIONS OF APPROVAL
Adhere to previously issued stipulations.

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)

Amanda Walker

Title **Operations/Regulatory Technician - Sr.**

Signature

Date **4/9/2019**

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instruction on page 2)

NMOC

20

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-045-35884	² Pool Code 71629	³ Pool Name BASIN FRUITLAND COAL
⁴ Property Code 318755	⁵ Property Name TRAIL CANYON	⁶ Well Number 104H
⁷ GRID No. 372171	⁸ Operator Name HILCORP ENERGY COMPANY	⁹ Elevation 6906'

¹⁰ Surface Location

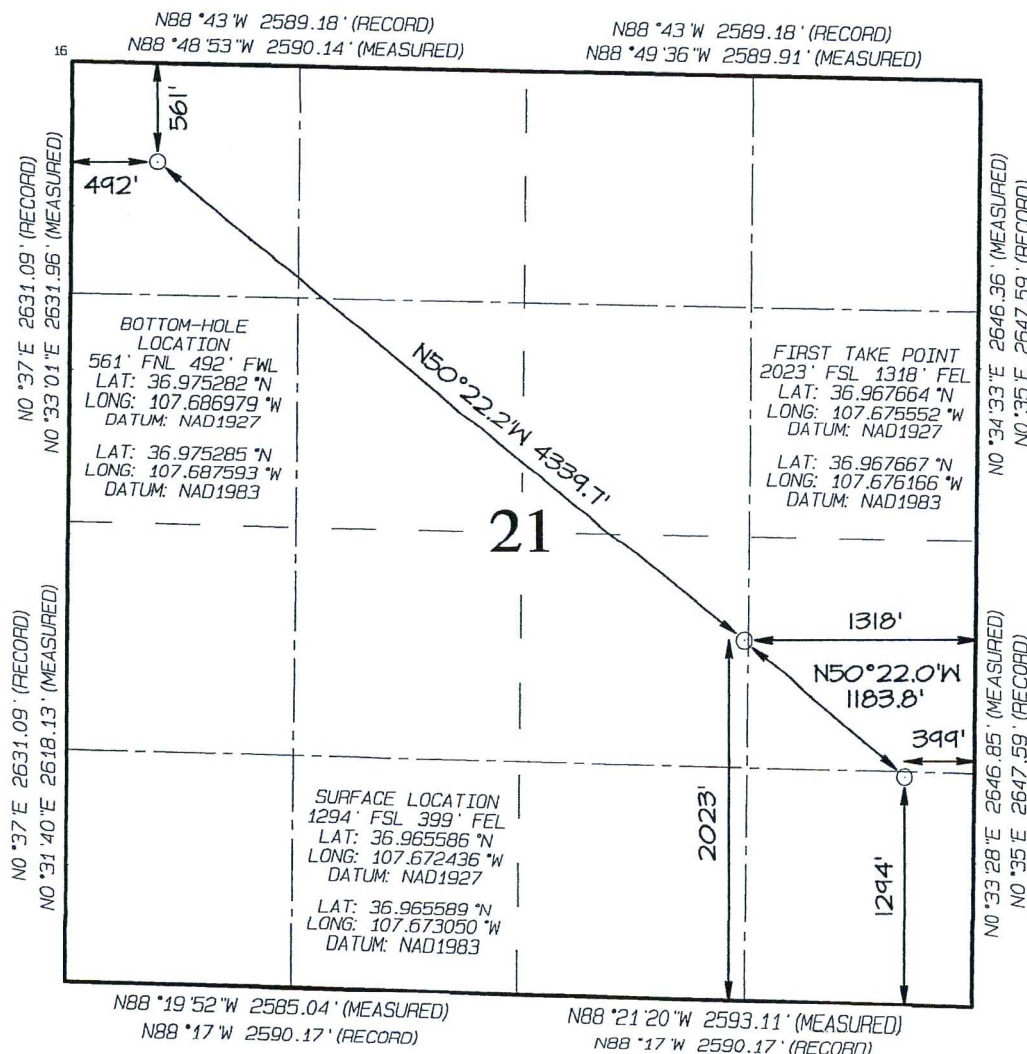
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	21	32N	8W		1294	SOUTH	399	EAST	SAN JUAN

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	21	32N	8W		561	NORTH	492	WEST	SAN JUAN

¹² Dedicated Acres 640.00	Entire Section 21	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE
BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



¹⁷ OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: *Amanda Walker* Date: 4/9/2019
Printed Name: Amanda Walker
E-mail Address: mwalker@hilcorp.com

¹⁸ SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date Revised: APRIL 9, 2019
Date of Survey: JUNE 19, 2018

Signature and Seal of Professional Surveyor



JASON C. EDWARDS

Certificate Number 15269



Hilcorp Energy Company

Trail Canyon 104H

Hilcorp Energy Company Technical Plan

1. Location

Trail Canyon 104H

SHL: 1294' FSL, 399' FEL, Sec 21, T32N, R8W

Lat-1 BHL: 561' FNL, 492' FWL, Sec 21, T32N, R8W

GL: 6906'

2. Geological Markers

Anticipated formation tops with comments of any possible water, gas, or oil shows are indicated below:

Formation	Depth (TVD)	Remarks
Ojo Alamo	2334'	Wet
Kirtland	2379'	Wet
Fruitland	3388'	Possible Gas/Water
Pictured Cliffs	3829'	Wet

See attached directional plan for anticipated formation tops in measured depth.

Susco 16 state 002 well was used as offset for regional formation tops

3. Pressure Control Equipment

See Attached BOPE & Choke Manifold Schematic for a diagram of pressure control equipment.

- BOPE will be nipped up on top of wellhead after surface casing is set and cemented.
- Pressure control configuration will be designed to meet the minimum 2M standards.
- All equipment will have 3M pressure ratings.
- A rotating head will be rigged up on top of annular as seen in attached diagram.

4. Casing & Cement Program

A) The proposed casing program is outlined below:

Proposed Casing				
Casing	Hole Size	Casing Size	Weight/Grade	Depth
Surface	12-1/4"	9-5/8"	32.3# H-40	0' - 500' (MD)
Intermediate	8-3/4"	7"	23# L-80	0' - 4,170.36' (MD)
Prod Liner (predrilled)	6-1/4"	4-1/2"	11.6# J-55/L-80	4,170' - 8,511.44' (MD)

The intermediate hole section will be drilled to target depth, then fully cased and cemented with 7" casing.

First Take Point is:

Lat1 - 4,170.36' MD / 3,581' TVD.

If the 6-1/4" hole is not drilled to total MD, the production liner setting depth and length will be adjusted accordingly.

The 7" casing shoe will be set inside the setback boundary line.

B) The proposed cement program is shown below:

Cement Program						
Interval	Depth (MD)	Sacks	Slurry	Excess	Volume	Planned Cement Top
Surface	500'	265	Lead Cmt: Varicem Cement 2% Calcium Chloride, pellet 0.1250 lbm/sk Poly-E-Flake 1.18 ft ³ / sk - 5.24 gal/sk 15.8 ppg	100%	313 ft ³	Surface
Intermediate	4,170.36'	446	Lead Cmt: Varicem Cement 0.3% Super CBL 0.3 % FE-2 5 lbm/sk Kol-Seal 0.125 lbm/sk Poly-E-Flake 2.11 ft ³ / sk - 11.25 gal/sk 12.9 ppg	50%	940 ft ³	Surface
Production		N/A	N/A – Open hole with pre-drilled liner	N/A	N/A	N/A

Actual cement volumes will be determined and may be adjusted onsite based on well conditions. For the intermediate hole, a 2-stage cement job may be performed if hole conditions indicate during operations. Stage tool will be placed appropriately as conditions indicate.

C) The proposed centralizer program is shown below:

Centralizer Program	
Interval	Centralizers
Surface	1 per joint on bottom 3 joints
Intermediate	10' above shoe joint with collar clamp On top of 2nd, 4th, 6th, 8th, 10th joints 1 every 4th joint to Ojo Alamo 1 every joint through Ojo Alamo 1 Turbolizer will be placed mid-way into Ojo Alamo 1 every 4th joint from top of Ojo Alamo to surface shoe 1 inside surface casing
Production	N/A



Trail Canyon 104H

To allow adequate time for cement to achieve a minimum of 500 psi compressive strength, a minimum of 8 hours wait on cement time for each hole section will be observed. The wellhead will not be installed, casing will not be tested, and the prior casing shoe will not be drilled out until adequate wait on cement time is achieved.

5. Drilling Fluids

A) The proposed drilling fluid program is outlined below:

Mud Program			
Interval	Mud Type	Weight (ppg)	Fluid Loss (cc)
Surface	Air / Water Gel System	Air 8.3 - 9.2	NC
Intermediate	LSND / Gel System	8.4 - 9.5	6 - 16
Production	LSND Brine (if needed)*	8.5 - 10	4 - 14

In the production hole, Brine will be utilized only if a weighting agent is needed to raise MW (for either well control or wellbore stability purposes).

LCM may be added to the mud system if hole conditions indicate.

B) Closed loop equipment will be utilized for solids control. Cuttings from surface, intermediate, and production hole will be hauled to an approved disposal site.

6. Abnormal Pressures & Hazards

- No over-pressured intervals expected.
- Estimated Reservoir Pressure = 1500 psi.
- Maximum anticipated surface pressure = 1,300 psi
- There is some offset Fruitland Coal and Mesa Verde production within the area which could result in these respective formations being under pressured.
- No hydrogen sulfide gas is expected based on nearby well production.

7. Intermediate Hole Section

- The intermediate section will be drilled through the target Fruitland coal seam.
- GR will be run in the BHA and will be used in conjunction with mud logger data to determine the exact TVD depth of the target coal seam.
- 7" casing will be run completely through the interval, and cemented to surface.

8. Testing, Logging, Coring

Testing, Logging, Coring Procedure		
Evaluation Method	Start Depth	End depth
Mud Logs	Fruitland Coal Top	TD
MWD Directional Surveys	KOP	TD
LWD GR	7" window	TD
Temp Survey	If needed on intermediate casing	

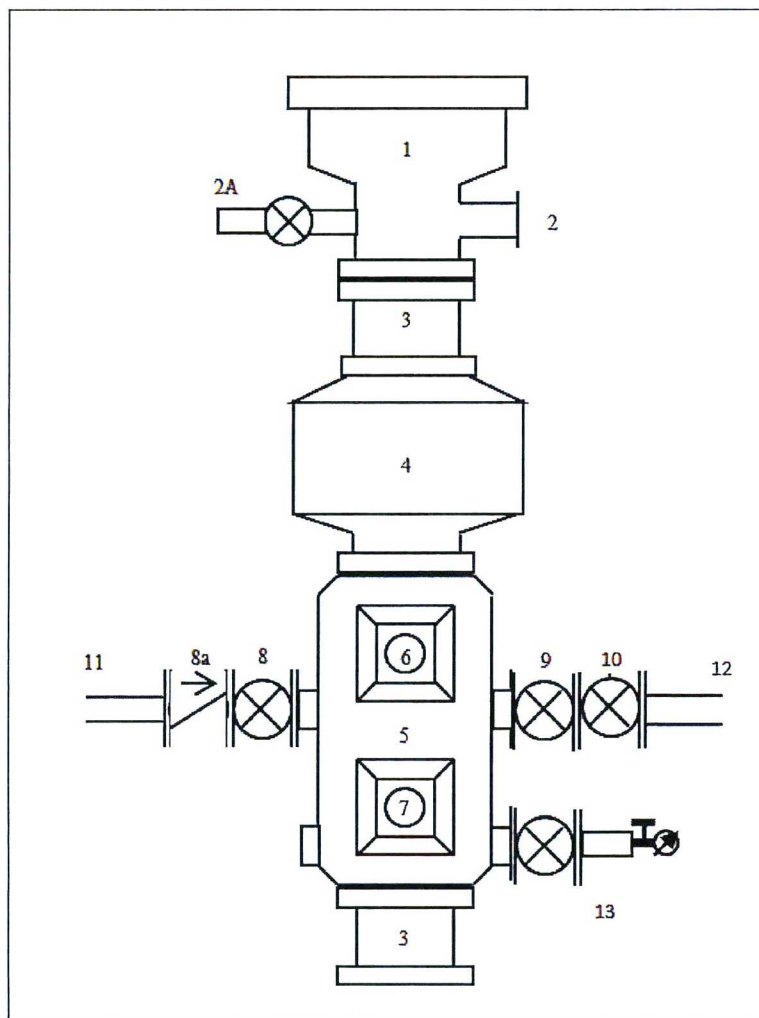
9. Directional Plan

The planned wellbore directional plan and plot is attached.

The planned directional plan is built off geological targets from offset wells. The production hole will be landed and drilled within target formation horizontally utilizing LWD equipment to help steer the wellbore. On site adjustments will be made to the directional plan as formation and hole indicates.

BOPE Schematic – Aztec 777

1. Rotating Head
2. Flow line
- 2A. Fill up line and valve
3. Spacer Spools (as needed)
4. 11" 3M Annular Preventer
5. 11" 3M Double Ram Preventer
6. Blind Rams
7. Pipe Rams
8. 3M Gate Valve (2")
- 8a. Check valve
9. 3M Manual Gate Valve (3")
10. 3M Manual Gate Valve (3")
11. Kill Line Connection, 2" hard line
12. Choke Line (3" Co-Flex)
13. Secondary outlet with valve, bull plug, needle valve, and pressure gauge





Hilcorp Energy Company

Hilcorp Energy Company

San Juan County, NM (NAD27)

T32N - R08W SEC 21

Trail Canyon 104H

Original Hole

Plan: Rev 1

Standard Planning Report - Geographic

08 April, 2019

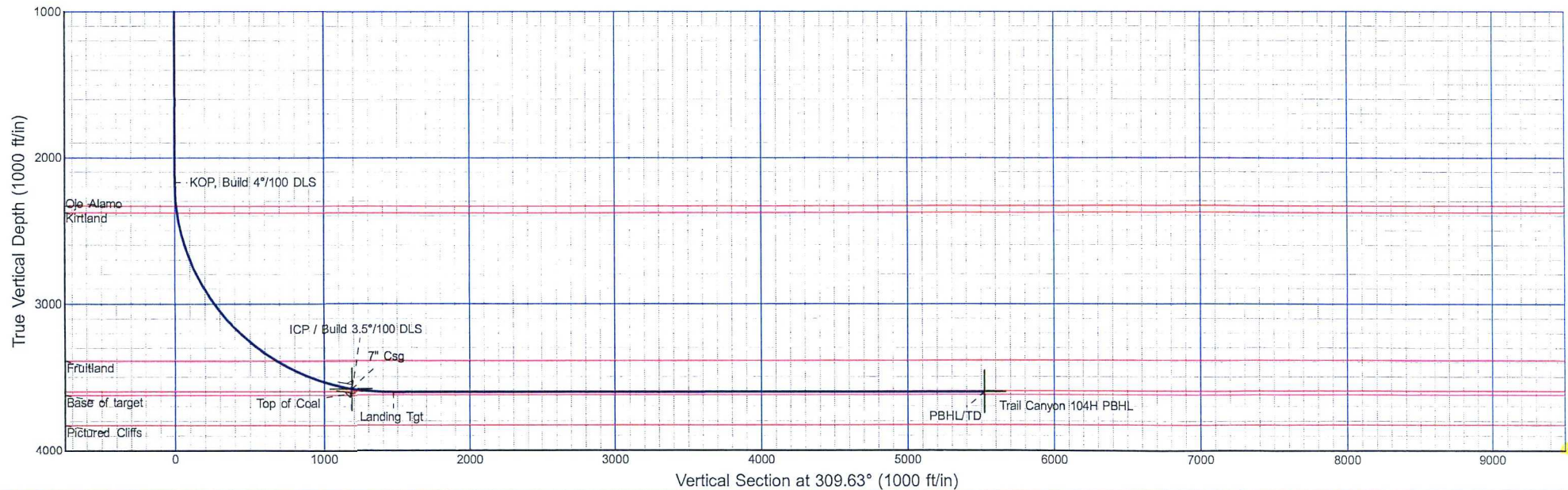
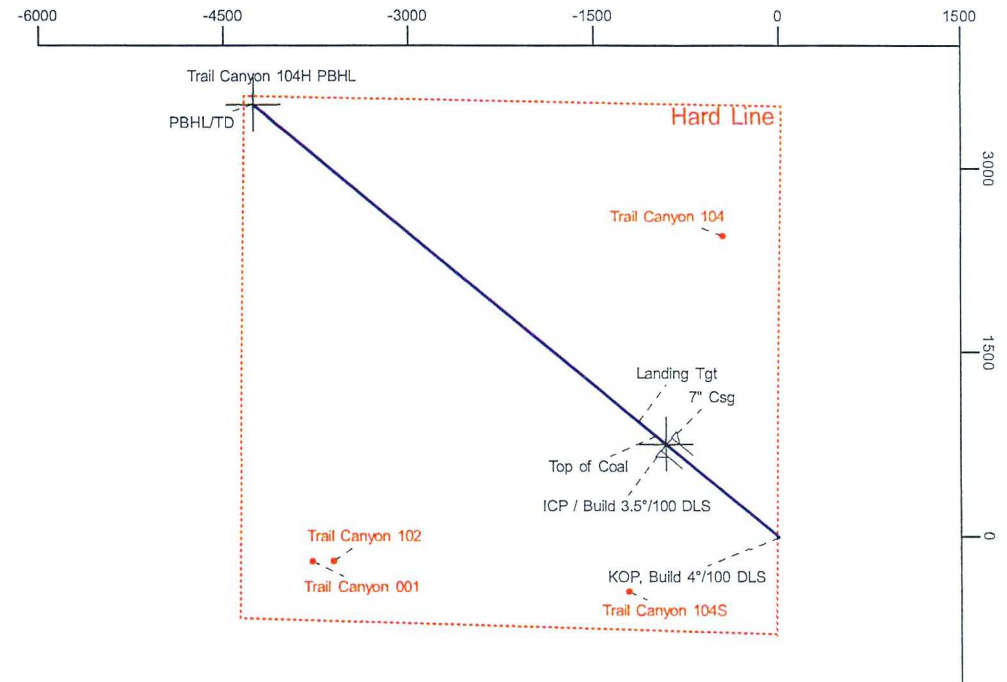
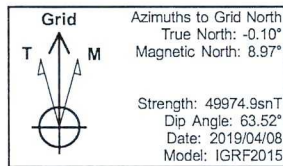
KOLTEK
ENERGY SERVICES

Well: Trail Canyon 104H		Field: San Juan County, NM (NAD27)		Site: T32N - R08W SEC 21		Rig: TBD	Plan: Rev 1	
Borehole: Original Hole	Plan Date: 04-08-2019	Datum: US State Plane 1927	KB: 6921ft	Latitude: 36.965586	Longitude: -107.672436	Model: IGRF2015	Date: 08-Apr-19	DEC: 9.07°
VSec: 309.63deg	Grid Conv: 0.10	Zone: New Mexico West 3003	GL: 6906.00ft	Northing: 2170780.62	Easting: 547005.66	DIP: 63.52°	FS: 49975	North Ref: Grid

Critical Points									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2170.36	0.00	0.00	2170.36	0.00	0.00	0.00	0.00	0.00
3	4170.36	80.00	309.63	3581.00	754.98	-911.63	4.00	309.63	1183.66
4	4276.09	83.68	309.63	3596.00	821.72	-992.22	3.48	0.00	1286.30
5	4459.62	90.07	309.63	3605.00	938.55	-1133.29	3.48	0.00	1471.47
6	8511.44	90.07	309.63	3601.00	3522.92	-4253.90	0.00	0.00	5523.28
Annotation									
KOP, Build 4°/100 DLS									
ICP / Build 3.5°/100 DLS									
Top of Coal									
Landing Tgt									
PBHL/TD									

Target Details									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
Trail Canyon 104H ICP	3581.00	754.98	-911.63	2171535.60	546094.03	36.967664	-107.675552		
Trail Canyon 104H PBHL	3601.00	3522.92	-4253.90	2174303.54	542751.76	36.975282	-107.686978		

Casing Details				Formation Top Details		
TVD	MD	Name	Size	TVDPath	MDPath	Formation
3581.00	4170.36	7" Csg	7.000	2334.00	2334.36	Ojo Alamo
				2379.00	2379.74	Kirtland
				3388.00	3625.85	Fruitland
				3596.00	4276.09	Top of Coal





Planning Report - Geographic



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Trail Canyon 104H
Company:	Hilcorp Energy Company	TVD Reference:	KB 15 ft @ 6921.00ft (TBD)
Project:	San Juan County, NM (NAD27)	MD Reference:	KB 15 ft @ 6921.00ft (TBD)
Site:	T32N - R08W SEC 21	North Reference:	Grid
Well:	Trail Canyon 104H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 1		

Project	San Juan County, NM (NAD27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico West 3003		

Site	T32N - R08W SEC 21		
Site Position:		Northing:	2,170,780.62 usft
From:	Map	Easting:	547,005.66 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	36.965586
		Longitude:	-107.672436
		Grid Convergence:	0.10 °

Well	Trail Canyon 104H		
Well Position	+N/-S	0.00 ft	Northing: 2,170,780.62 usft
	+E/-W	0.00 ft	Easting: 547,005.66 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	36.965586
		Longitude:	-107.672436
		Ground Level:	6,906.00 ft

Wellbore	Original Hole		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2015	2019/04/08	9.07
			Dip Angle (°) 63.52
			Field Strength (nT) 49,975

Design	Rev 1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)
	0.00	0.00	0.00
			Direction (°) 309.63

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,170.36	0.00	0.00	2,170.36	0.00	0.00	0.00	0.00	0.00	0.00	
4,170.36	80.00	309.63	3,581.00	754.98	-911.63	4.00	4.00	0.00	309.63	Trail Canyon 104H PE
4,276.09	83.68	309.63	3,596.00	821.72	-992.22	3.48	3.48	0.00	0.00	
4,459.62	90.07	309.63	3,606.00	938.55	-1,133.29	3.48	3.48	0.00	0.00	
8,511.44	90.07	309.63	3,601.00	3,522.93	-4,253.90	0.00	0.00	0.00	0.00	Trail Canyon 104H PE

Database: EDM 5000.1 Single User Db
 Company: Hilcorp Energy Company
 Project: San Juan County, NM (NAD27)
 Site: T32N - R08W SEC 21
 Well: Trail Canyon 104H
 Wellbore: Original Hole
 Design: Rev 1

Local Co-ordinate Reference: Well Trail Canyon 104H
 TVD Reference: KB 15 ft @ 6921.00ft (TBD)
 MD Reference: KB 15 ft @ 6921.00ft (TBD)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
100.00	0.00	0.00	100.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
200.00	0.00	0.00	200.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
300.00	0.00	0.00	300.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
400.00	0.00	0.00	400.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
500.00	0.00	0.00	500.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
600.00	0.00	0.00	600.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
700.00	0.00	0.00	700.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
800.00	0.00	0.00	800.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
900.00	0.00	0.00	900.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
1,000.00	0.00	0.00	1,000.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
1,100.00	0.00	0.00	1,100.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
1,200.00	0.00	0.00	1,200.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
1,300.00	0.00	0.00	1,300.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
1,400.00	0.00	0.00	1,400.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
1,500.00	0.00	0.00	1,500.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
1,600.00	0.00	0.00	1,600.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
1,700.00	0.00	0.00	1,700.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
1,800.00	0.00	0.00	1,800.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
1,900.00	0.00	0.00	1,900.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
2,000.00	0.00	0.00	2,000.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
2,100.00	0.00	0.00	2,100.00	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
2,170.36	0.00	0.00	2,170.36	0.00	0.00	2,170,780.62	547,005.66	36.965586	-107.672436
KOP, Build 4°/100 DLS									
2,200.00	1.19	309.63	2,200.00	0.20	-0.24	2,170,780.82	547,005.42	36.965587	-107.672437
2,300.00	5.19	309.63	2,299.82	3.74	-4.52	2,170,784.36	547,001.14	36.965596	-107.672452
2,334.36	6.56	309.63	2,334.00	5.98	-7.22	2,170,786.60	546,998.44	36.965603	-107.672461
Ojo Alamo									
2,379.74	8.38	309.63	2,379.00	9.74	-11.77	2,170,790.37	546,993.89	36.965613	-107.672476
Kirtland									
2,400.00	9.19	309.63	2,399.02	11.72	-14.15	2,170,792.34	546,991.51	36.965618	-107.672485
2,500.00	13.19	309.63	2,497.10	24.09	-29.08	2,170,804.71	546,976.57	36.965652	-107.672536
2,600.00	17.19	309.63	2,593.59	40.79	-49.25	2,170,821.41	546,956.40	36.965698	-107.672605
2,700.00	21.19	309.63	2,688.01	61.75	-74.56	2,170,842.37	546,931.10	36.965756	-107.672691
2,800.00	25.19	309.63	2,779.92	86.85	-104.88	2,170,867.48	546,900.78	36.965825	-107.672795
2,900.00	29.19	309.63	2,868.85	115.99	-140.06	2,170,896.61	546,865.60	36.965905	-107.672915
3,000.00	33.19	309.63	2,954.39	149.01	-179.93	2,170,929.63	546,825.73	36.965996	-107.673051
3,100.00	37.19	309.63	3,036.10	185.76	-224.30	2,170,966.38	546,781.36	36.966097	-107.673203
3,200.00	41.19	309.63	3,113.59	226.05	-272.95	2,171,006.67	546,732.71	36.966208	-107.673369
3,300.00	45.19	309.63	3,186.49	269.69	-325.65	2,171,050.31	546,680.01	36.966328	-107.673549
3,400.00	49.19	309.63	3,254.44	316.47	-382.13	2,171,097.09	546,623.52	36.966457	-107.673742
3,500.00	53.19	309.63	3,317.11	366.16	-442.13	2,171,146.78	546,563.53	36.966594	-107.673948
3,600.00	57.19	309.63	3,374.19	418.51	-505.35	2,171,199.14	546,500.31	36.966738	-107.674164
3,625.85	58.22	309.63	3,388.00	432.45	-522.18	2,171,213.07	546,483.48	36.966776	-107.674221
Fruitland									
3,700.00	61.19	309.63	3,425.40	473.28	-571.48	2,171,253.90	546,434.18	36.966889	-107.674390
3,800.00	65.19	309.63	3,470.51	530.19	-640.21	2,171,310.82	546,365.45	36.967045	-107.674625
3,900.00	69.19	309.63	3,509.27	588.98	-711.18	2,171,369.60	546,294.48	36.967207	-107.674867
4,000.00	73.19	309.63	3,541.52	649.34	-784.07	2,171,429.96	546,221.59	36.967373	-107.675116
4,100.00	77.19	309.63	3,567.08	710.99	-858.51	2,171,491.61	546,147.15	36.967543	-107.675371
4,170.36	80.00	309.63	3,581.00	754.98	-911.63	2,171,535.60	546,094.03	36.967664	-107.675552
ICP / Build 3.5°/100 DLS - 7" Csg									
4,200.00	81.03	309.63	3,585.88	773.62	-934.14	2,171,554.24	546,071.52	36.967715	-107.675629

Database: EDM 5000.1 Single User Db
 Company: Hilcorp Energy Company
 Project: San Juan County, NM (NAD27)
 Site: T32N - R08W SEC 21
 Well: Trail Canyon 104H
 Wellbore: Original Hole
 Design: Rev 1

Local Co-ordinate Reference: Well Trail Canyon 104H
 TVD Reference: KB 15 ft @ 6921.00ft (TBD)
 MD Reference: KB 15 ft @ 6921.00ft (TBD)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,276.09	83.68	309.63	3,596.00	821.72	-992.22	2,171,602.34	546,013.44	36.967848	-107.675828
Top of Coal									
4,300.00	84.51	309.63	3,598.46	836.89	-1,010.54	2,171,617.51	545,995.12	36.967889	-107.675891
4,400.00	87.99	309.63	3,604.99	900.53	-1,087.38	2,171,681.15	545,918.28	36.968065	-107.676153
4,459.62	90.07	309.63	3,606.00	938.55	-1,133.29	2,171,719.17	545,872.37	36.968169	-107.676310
Landing Tgt									
4,500.00	90.07	309.63	3,605.95	964.30	-1,164.39	2,171,744.92	545,841.27	36.968240	-107.676416
4,600.00	90.07	309.63	3,605.83	1,028.08	-1,241.40	2,171,808.70	545,764.26	36.968416	-107.676680
4,700.00	90.07	309.63	3,605.71	1,091.87	-1,318.42	2,171,872.49	545,687.24	36.968591	-107.676943
4,800.00	90.07	309.63	3,605.58	1,155.65	-1,395.44	2,171,936.27	545,610.22	36.968767	-107.677206
4,900.00	90.07	309.63	3,605.46	1,219.43	-1,472.46	2,172,000.05	545,533.20	36.968942	-107.677470
5,000.00	90.07	309.63	3,605.34	1,283.21	-1,549.48	2,172,063.83	545,456.18	36.969118	-107.677733
5,100.00	90.07	309.63	3,605.22	1,347.00	-1,626.49	2,172,127.62	545,379.17	36.969293	-107.677996
5,200.00	90.07	309.63	3,605.10	1,410.78	-1,703.51	2,172,191.40	545,302.15	36.969469	-107.678259
5,300.00	90.07	309.63	3,604.97	1,474.56	-1,780.53	2,172,255.18	545,225.13	36.969645	-107.678523
5,400.00	90.07	309.63	3,604.85	1,538.34	-1,857.55	2,172,318.96	545,148.11	36.969820	-107.678786
5,500.00	90.07	309.63	3,604.73	1,602.13	-1,934.57	2,172,382.75	545,071.10	36.969996	-107.679049
5,600.00	90.07	309.63	3,604.61	1,665.91	-2,011.58	2,172,446.53	544,994.08	36.970171	-107.679313
5,700.00	90.07	309.63	3,604.48	1,729.69	-2,088.60	2,172,510.31	544,917.06	36.970347	-107.679576
5,800.00	90.07	309.63	3,604.36	1,793.48	-2,165.62	2,172,574.09	544,840.04	36.970522	-107.679839
5,900.00	90.07	309.63	3,604.24	1,857.26	-2,242.64	2,172,637.88	544,763.03	36.970698	-107.680102
6,000.00	90.07	309.63	3,604.12	1,921.04	-2,319.65	2,172,701.66	544,686.01	36.970873	-107.680366
6,100.00	90.07	309.63	3,604.00	1,984.82	-2,396.67	2,172,765.44	544,608.99	36.971049	-107.680629
6,200.00	90.07	309.63	3,603.87	2,048.61	-2,473.69	2,172,829.22	544,531.97	36.971224	-107.680892
6,300.00	90.07	309.63	3,603.75	2,112.39	-2,550.71	2,172,893.01	544,454.95	36.971400	-107.681156
6,400.00	90.07	309.63	3,603.63	2,176.17	-2,627.73	2,172,956.79	544,377.94	36.971575	-107.681419
6,500.00	90.07	309.63	3,603.51	2,239.95	-2,704.74	2,173,020.57	544,300.92	36.971751	-107.681682
6,600.00	90.07	309.63	3,603.39	2,303.74	-2,781.76	2,173,084.35	544,223.90	36.971927	-107.681945
6,700.00	90.07	309.63	3,603.26	2,367.52	-2,858.78	2,173,148.14	544,146.88	36.972102	-107.682209
6,800.00	90.07	309.63	3,603.14	2,431.30	-2,935.80	2,173,211.92	544,069.87	36.972278	-107.682472
6,900.00	90.07	309.63	3,603.02	2,495.08	-3,012.82	2,173,275.70	543,992.85	36.972453	-107.682735
7,000.00	90.07	309.63	3,602.90	2,558.87	-3,089.83	2,173,339.49	543,915.83	36.972629	-107.682999
7,100.00	90.07	309.63	3,602.77	2,622.65	-3,166.85	2,173,403.27	543,838.81	36.972804	-107.683262
7,200.00	90.07	309.63	3,602.65	2,686.43	-3,243.87	2,173,467.05	543,761.79	36.972980	-107.683525
7,300.00	90.07	309.63	3,602.53	2,750.22	-3,320.89	2,173,530.83	543,684.78	36.973155	-107.683789
7,400.00	90.07	309.63	3,602.41	2,814.00	-3,397.91	2,173,594.62	543,607.76	36.973331	-107.684052
7,500.00	90.07	309.63	3,602.29	2,877.78	-3,474.92	2,173,658.40	543,530.74	36.973506	-107.684315
7,600.00	90.07	309.63	3,602.16	2,941.56	-3,551.94	2,173,722.18	543,453.72	36.973682	-107.684579
7,700.00	90.07	309.63	3,602.04	3,005.35	-3,628.96	2,173,785.96	543,376.71	36.973857	-107.684842
7,800.00	90.07	309.63	3,601.92	3,069.13	-3,705.98	2,173,849.75	543,299.69	36.974033	-107.685105
7,900.00	90.07	309.63	3,601.80	3,132.91	-3,782.99	2,173,913.53	543,222.67	36.974208	-107.685368
8,000.00	90.07	309.63	3,601.67	3,196.69	-3,860.01	2,173,977.31	543,145.65	36.974384	-107.685632
8,100.00	90.07	309.63	3,601.55	3,260.48	-3,937.03	2,174,041.09	543,068.64	36.974559	-107.685895
8,200.00	90.07	309.63	3,601.43	3,324.26	-4,014.05	2,174,104.88	542,991.62	36.974735	-107.686158
8,300.00	90.07	309.63	3,601.31	3,388.04	-4,091.07	2,174,168.66	542,914.60	36.974911	-107.686422
8,400.00	90.07	309.63	3,601.19	3,451.83	-4,168.08	2,174,232.44	542,837.58	36.975086	-107.686685
8,500.00	90.07	309.63	3,601.06	3,515.61	-4,245.10	2,174,296.22	542,760.56	36.975262	-107.686948
8,511.44	90.07	309.63	3,601.00	3,522.93	-4,253.90	2,174,303.54	542,751.77	36.975282	-107.686979
PBHL/TD									

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Trail Canyon 104H
Company:	Hilcorp Energy Company	TVD Reference:	KB 15 ft @ 6921.00ft (TBD)
Project:	San Juan County, NM (NAD27)	MD Reference:	KB 15 ft @ 6921.00ft (TBD)
Site:	T32N - R08W SEC 21	North Reference:	Grid
Well:	Trail Canyon 104H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 1		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Trail Canyon 104H ICP - plan hits target center - Point	0.00	0.00	3,581.00	754.98	-911.63	2,171,535.60	546,094.03	36.967664	-107.675552
Trail Canyon 104H PBHI - plan hits target center - Point	0.00	0.00	3,601.00	3,522.93	-4,253.90	2,174,303.54	542,751.77	36.975282	-107.686979

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
4,170.36	3,581.00	7" Csg	7.000	8.750

Formations						
	Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	2,334.36	2,334.00	Ojo Alamo			
	2,379.74	2,379.00	Kirtland			
	3,625.85	3,388.00	Fruitland			
	4,276.09	3,596.00	Top of Coal			

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,170.36	2,170.36	0.00	0.00	KOP, Build 4"/100 DLS
4,170.36	3,581.00	754.98	-911.63	ICP / Build 3.5"/100 DLS
4,276.09	3,596.00	821.72	-992.22	Top of Coal
4,459.62	3,606.00	938.55	-1,133.29	Landing Tgt
8,511.44	3,601.00	3,522.93	-4,253.90	PBHL/TD



Hilcorp Energy Company

San Juan County, NM (NAD27)

T32N - R08W SEC 21

Trail Canyon 104H

Original Hole

Rev 1

Anticollision Summary Report

08 April, 2019



Company:	Hilcorp Energy Company	Local Co-ordinate Reference:	Well Trail Canyon 104H
Project:	San Juan County, NM (NAD27)	TVD Reference:	KB 15 ft @ 6921.00ft (TBD)
Reference Site:	T32N - R08W SEC 21	MD Reference:	KB 15 ft @ 6921.00ft (TBD)
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Trail Canyon 104H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Original Hole	Database:	EDM 5000.1 Single User Db
Reference Design:	Rev 1	Offset TVD Reference:	Offset Datum

Reference	Rev 1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	MD Interval 100.00ft
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 1,051.14 ft
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Combined Covariances
Casing Method:	Added to Error Values

Survey Tool Program	Date	2019/04/08
From (ft)	To (ft)	Survey (Wellbore)
0.00	8,511.44	Rev 1 (Original Hole)
		Tool Name
		MWD
		Description
		MWD - Standard

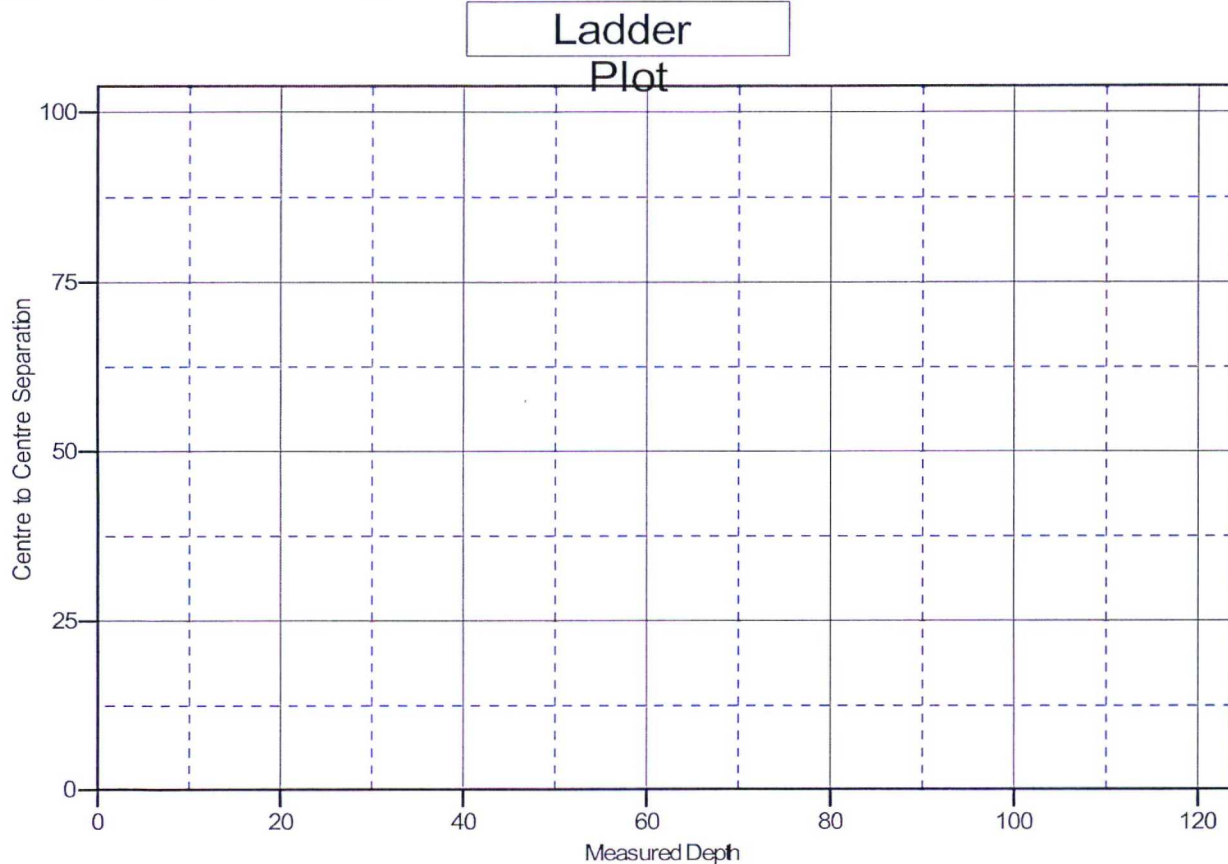
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
T32N - R08W SEC 21						
Trail Canyon 001 - Original Hole - Original Hole						Out of range
Trail Canyon 102 - Original Hole - Original Hole						Out of range
Trail Canyon 104 - Original Hole - Original Hole						Out of range
Trail Canyon 104S - Original Hole - Original Hole						Out of range

Company: Hilcorp Energy Company
Project: San Juan County, NM (NAD27)
Reference Site: T32N - R08W SEC 21
Site Error: 0.00 ft
Reference Well: Trail Canyon 104H
Well Error: 0.00 ft
Reference Wellbore: Original Hole
Reference Design: Rev 1

Local Co-ordinate Reference: Well Trail Canyon 104H
TVD Reference: KB 15 ft @ 6921.00ft (TBD)
MD Reference: KB 15 ft @ 6921.00ft (TBD)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB 15 ft @ 6921.00ft (TBD)
 Offset Depths are relative to Offset Datum
 Central Meridian is -107.833334

Coordinates are relative to: Trail Canyon 104H
 Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
 Grid Convergence at Surface is: 0.10°



LEGEND



Anticollision Summary Report

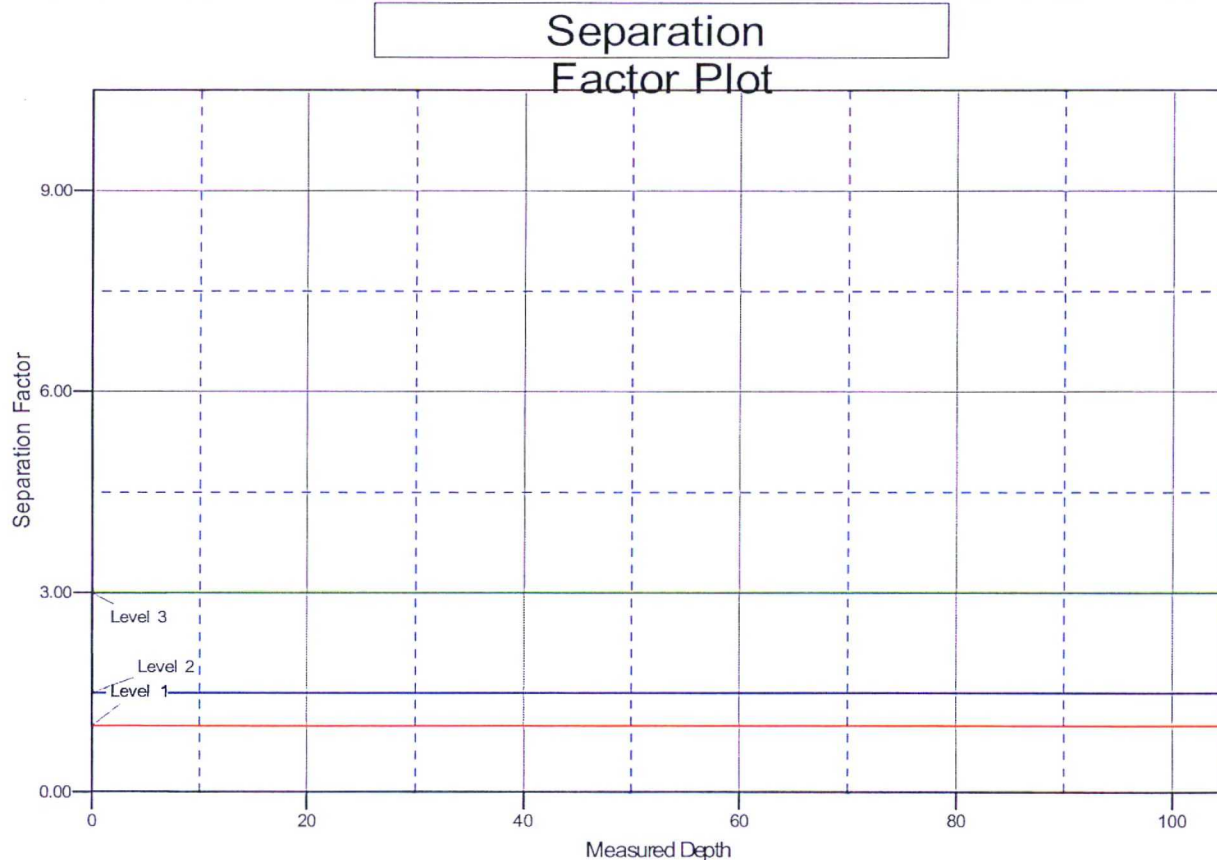


Company: Hilcorp Energy Company
Project: San Juan County, NM (NAD27)
Reference Site: T32N - R08W SEC 21
Site Error: 0.00 ft
Reference Well: Trail Canyon 104H
Well Error: 0.00 ft
Reference Wellbore: Original Hole
Reference Design: Rev 1

Local Co-ordinate Reference: Well Trail Canyon 104H
TVD Reference: KB 15 ft @ 6921.00ft (TBD)
MD Reference: KB 15 ft @ 6921.00ft (TBD)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB 15 ft @ 6921.00ft (TBD)
Offset Depths are relative to Offset Datum
Central Meridian is -107.833334

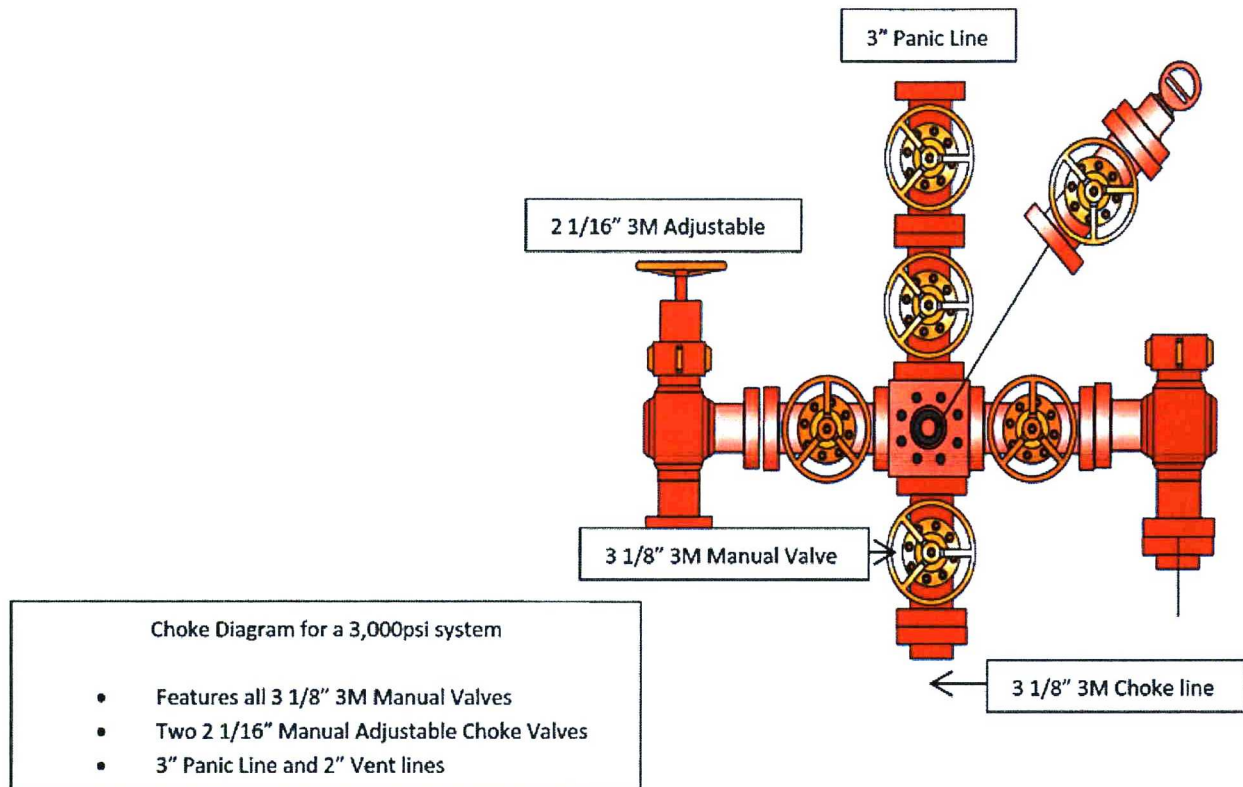
Coordinates are relative to: Trail Canyon 104H
Coordinate System is US State Plane 1927 (Exact solution), New Mexico West 30
Grid Convergence at Surface is: 0.10°



LEGEND

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Choke Manifold Schematic – Aztec 777



Directions from the Intersection of US Hwy 550 & State Hwy 173

in Aztec, NM to Hilcorp Energy Company Trail Canyon #104H

1294' FSL & 399' FEL, Section 21, T32N, R8W, N.M.P.M., San Juan County, NM

Latitude: 36.965589°N Longitude: 107.673050°W Datum: NAD1983

From the intersection of US Hwy 550 & State Hwy 173 in Aztec, NM, travel Easterly on State Hwy 173 for 1.0 mile to fork in roadway;

Go Left (Easterly) remaining on State Hwy 173 for 17.0 miles to Tee-intersection;

Go Left (North-Easterly) exiting State Hwy 173 onto State Hwy 511 for 17.9 miles to existing roadway on left-hand side of State Hwy 511 @ Mile Marker 26;

Go Left (North-westerly) exiting State Hwy 511 onto existing roadway for 0.4 miles to fork in roadway;

Go Right (Northerly) for 0.6 miles to fork in roadway;

Go Left (Northerly) for 0.3 miles to fork in roadway;

Go Left (Westerly) for 0.2 miles to begin access on left-hand side of existing roadway, which continues for 77.7' to staked Hilcorp Trail Canyon #104H.